GRACO

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CORRECT USE

The pressure regulation valve P10 (P10-VP OEM, P4-VP), referred to as P10-VP below, is exclusively manufactured for the usual applications in surfacing technology or similar work.

Any other purpose above and beyond this is considered as incorrect use. We are not responsible for any damage or injury resulting from this; the user bears the sole responsibility in such cases.

Correct use includes observing the operating, maintenance and inspection conditions and regulations laid down by us.

The pressure regulation valve P10-VP may only be installed, maintained and repaired by personnel familiar with, and trained to recognise the inherent dangers.

The relevant accident prevention regulations as well as safety rules must be respected.

Unilateral changes to the pressure regulation valve P10-VP will cause us to waive our responsibility for any damage or injury caused.

The user is responsible for correct attachment/installation.

FUNCTIONAL DIAGRAM



PRODUCT DESCRIPTION



The pressure regulation valve P10-VP consists of the housing bottom part ① with valve seat ②, valve ball ③ and the connection holes ④, as well as the housing top part ⑤ with piston ⑥ and compressed air connection ⑦.

The flat diaphragm (8) is situated between the top and bottom housing parts as a separating element. The valve tappet (9) connects the diaphragm to the piston and so ensures the transmission of the movement of the membrane to the valve ball.

During operation, the material under pressure flows from the inlet (E) via the spring-loaded ball valve (support spring (1) into the material space (M) and from there to the outlet (A).

Changes in pressure caused by removal of material at the consumer end are transmitted by the diaphragm to the piston charged with compressed air and have a regulatory effect through the coupling of piston, diaphragm, valve tappet, ball and support spring.

- Valve closes when the regulated pressure is reached at the material outlet
- Valve opens when the pressure drops at the material outlet

The pressure regulation valve is designed for straight pipe assembly.

The material path in the pressure regulation valve passes from the inlet to a turbulence zone (in order to prevent deposits) and rises from below, via the ball valve to the outlet.

SUITABILITY, MATERIAL

Material	Suitability
neutral	highly suitable
corrosive	highly suitable
abrasive	suitable under
	certain conditions
acidic	suitable under
	certain conditions
inflammable ¹⁾	highly suitable

¹⁾ Pressure regulation valve earthed. In the case of strongly abrasive and aggressive materials, please contact us.

Kinematic viscosity in mm²/s			Suitability
	up to	500	highly suitable
500	up to	750	suitable
	over	1500	suitable under certain conditions must be tested

Solids content	Suitability
low	highly suitable
low to 1%	suitable
1 to 3%	suitable under certain conditions
over 3%	must be tested – not suitable

TECHNICAL DATA

KEY TO DESIGNATION



DATA

Pressure regulation valves without accessories (basic version)

Pressure regulation valve Type	Version	Regulation pressure range [bar]	Weight [kg]	Article no. (basic version)
P10-VP	SST	0 / 10		79635 001003
P10-VP OEM	SST/Silicon nitride	0.4 - 10	1.31	79635 020003
P 4-VP	SST	0.4 - 3.5 ¹⁾		79635 001003

¹⁾ Limitation by the regulation pressure range of the air pressure regulation valve

Material inlet pressure	max. allowable	40 Bar
Material temperature	0 up to	90 °C
Operating air pressure	max. allowable	10 Bar
Volume flow (characteristic)		4 l/mii

5 bar regulated at the pressure regulation valve,
 [Viscosity 45 mm²/s (cSt)],

Spray gun with 5.3 mm² (Ø2,6) nozzle

Local and material temperature about 20°C

MATERIALS OF THE AREA IN CONTACT WITH THE FLUID



Pos.	Designation	Material
1	Flat membrane	PTFE/NBR
2	Parallel pin	Hardened steel
3	Ring	PTFE
4	Housing bottom part	SST
5	Valve seat	Hardened steel / PEEK ¹⁾
6	O-ring	FPM
7	Cover	SST
8	Valve tappet	SST
9	Sealing ring	РОМ
10	Fixing screw	SST
11	Valve seat	SST
12	Ball	Hardened steel / Silicon nitride ¹⁾
13	Pressure spring	SST

The housing top part is made of aluminum. Take care with materials which contain chlorinated hydrocarbons such as trichloroethane or methylene chloride. They react with aluminum to form metallo-organic compounds. These compounds are explosive and extremely

caustic.

1) Version P10-VP OEM

EARTH, CONNECTION THREAD



Nominal diameter of the compressed air hose preferred DN 6; hose length < 1.5 m also DN 4.

ATTACHMENT POSITION

Vertical - compressed air connection at the top.

TOOL LIST

	O		
Allen Screw DIN 911	Tubular socket wrench DIN 659	Screwdriver for Phillips screws DIN 5262	
SW 3, SW 4, SW 5	SW 13	Gr. 2 (for thread M4)	



COMMISSIONING

Install pressure regulation valve

- The material connections are sealed inside in the housing bottom part
 Ring, Article no. 76104 118001
- Note attachment position

Connect pipes, hoses

Check sealing.

Flush pressure regulation valve

All pressure regulation valves are tested for operation with an anti-corrosion liquid after factory assembly. On commissioning, the residue from this liquid as well as contaminants which may have been generated during installation must be thoroughly flushed out with solvents (detergents).

Commission pressure regulation valve

- Apply compressed air to the piston with the material pressure line shut off.
 Then fill the pressure regulation valve with material.
 - At the same time, increase the material inlet pressure.
- Regulate the desired material outlet pressure. Then shut off the supply of compressed air.

The material inlet pressure should be higher than the regulated material outlet pressure.

OPERATION

Do not exceed the specified technical data (page 4).

Before prolonged shutdown (holidays), the pressure regulation valve should be flushed and the detergent left in the system until the next time it is used.

MAINTENANCE, INSPECTION, REPAIR

- The pressure regulation valve P10 VP needs little maintenance.
- Flush thoroughly before operating pauses
- Drain the condensed water every day from the filter or filter regulator.when there is no automatic water drainage in the compressed air supply to the pressure regulation valve.
- Check leakage behaviour [air or material escaping from the leakage hole (Pos 1), page 3)] at regular intervals – once a day.
 - If air is escaping, the piston seal (Airzet ring) should be replaced.
 - If material is escaping, the flat diaphragm and the piston seal should be replaced.

- The service life of the hose lines is adversely affected, and thus shortened, by surrounding influences (oxygen in air, temperature, light, etc.), even if correctly handled. It is recommended that they undergo regular visual checks and occasional checking of performance. As a precaution the hose lines should be replaced by new ones at intervals set by the operator.
- A change in system pressure can be a sign of progressive wear and tear of the valve parts When repairing, replace the complete valve seat, the valve ball, the O-rings, the piston seal as well as the flat diaphragm.

Never at any time dismantle a pressure regulation valve which is under pressure.

Lightly grease the parts before assembly.

- We recommend "grease OKS 270" (Tube 100g, article no. 70950 003001).

TORQUE MOMENTS



Pos.	Thread	Torque Moment
1	M5	4-5 Nm
2	M8	5 Nm
3	M6	2 Nm

Fig. 7

TROUBLESHOOTING

TROUBLESHOOTING					
Component group	Nature of defect	Defect symptoms	Possible cause	Countermeasure	
Flat diaphragmMaterial – drop in pressureMaterial es from the les hole		Material escaping from the leakage hole	Flat diaphragm damaged	Replace flat diaphragm	
Piston seal	Material – drop in pressure	Air escaping from the leakage hole	Piston seal worn out	Replace piston seal	
Valve parts	Material – rise in pressure	Material - pressure rises with valve closed	Valve parts worn out	Replace valve parts and flat diaphragm	
Air connection	Material – drop in pressure	No material – pressure regulation	Air supply interrupted	Check the plug connections and air hose	

FOOTNOTE

The pressure regulation valve P10 - VP intended to be attached/installed to/in a machine for surfacing technology and commissioning is prohibited until it can be established that the machine to/in which the pressure regulation valve is to be attached/installed, complies with the specifications of the EU directive for Machines version 93/44/EEC.

LIST OF REPLACEMENT PARTS



Spare parts set, standard valve (SST) Article No. 79			No. 79978 091001	
Pos.	Number	Designation		
30	2	O-ring	12 x 2 B	FPM
40	1	O-ring	20 x 2 B	FPM
50	1	Ball	6 mm	Hardened steel
140	1	Pressure spring	4.5 x 1 x 18.5	SST
190	1	Ball support		SST
200	1	Valve seat complete	D 6,5	Hardened steel
210	1	Valve tappet complete		SST

Spare parts set, OEM valve (SST/Silicon nitride)			Artic	le No. 79978 092001
Pos.	Number	Designation		
30	2	O-ring	12 x 2 B	FPM
40	1	O-ring	20 x 2 B	FPM
50	1	Ball	6 mm	Silicon nitride
140	1	Pressure spring	4.5 x 1 x 18.5	SST
190	1	Ball support		SST
200	1	Valve seat complete	D 6,5	PEEK
210	1	Valve tappet complete		SST

Spare part se	t, diaphragm		Article No.	79978 094001
Pos.	Number	Designation		
120	1	Flat diaphragm	D 83 x T 0,65	
150	1	Guide bush	8 x 1.55 x 143	
160	1	Piston seal	PK 50 x 2.8	



a) Pos. 101, 102 and 103 only for pressure regulation valve P4-VP

b) Pos. 104 only for pressure regulation valve P10-VP

Pos.	Designation	Notes	Article No.
101	Manometer	G1/8 0-16 bar	75781 001001
102	Pressure regulation valve	G1/4 0-4 bar	75631 002002
103	Detachable union nipple	R 1/4-conical. – R 1/4-	75239 001003
104	Pressure regulation valve	G1/4 0-10 bar	77631 014002
105	Ball cock complete	PN 15 G ¼	77601 005002
106	Manometer	G1/4 0-16 bar	75782 006001
107	Pipe complete	PN 100	77796 064003
108	Nipple reduction.	6-G3/8-G1/4	76639 016003
109	Nipple	8-G3/8	76640 005001
110	Elbow	R3/8-G1/4	75214 011001
111	Sealing ring	A17 x 21	74188 015090
112	Elbow complete	-	77654 002001



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GRACO STANDARD WARRANTY

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the repaid return of equipment claimed to be defective to an authorized Graco distributor for verification of claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

Graco does not extend its warranty to accessories, appliances, materials or components which are sold by Graco but are not manufactured by Graco and makes no guarantee, however implied, with regard to the brand capability and suitability for a certain purpose. These parts sold by Graco but not manufactured by Graco (such as electric motors, switches, hoses, etc.) are covered by the warranties of the respective manufacturers. Graco will support the buyer in enforcing any warranty claim with the proviso that in no event can Graco be made liable for indirect, incidental, special or consequential damages which arise from the supply of appliances by Graco under the conditions governed by these provisions, or the supply, performance or use of any products or other goods which are sold under the conditions governed by these provisions, whether as the result of breach of contract, breach of warranty, negligence on the part of Graco or for any other reason.

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